

Emergence of intensive and agro-ecological dairy farming systems

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African milk producers are responding to the growing demand for milk through varying levels of intensification and of agro-ecological practices.

Africa-Milk supports milk producers towards a more intensive and agro-ecological production, i.e. with high technical and economic performance, low level of artificial inputs, and high recycling of by-products.

Farm surveys carried out in 2019 aimed to characterize the diversity of dairy farm systems in the four countries of the project (Senegal (SN), Burkina Faso (BF), Kenya (KN) and Madagascar (MD)), their trends and needs from an Agro-Ecological Intensification (AEI) point of view.

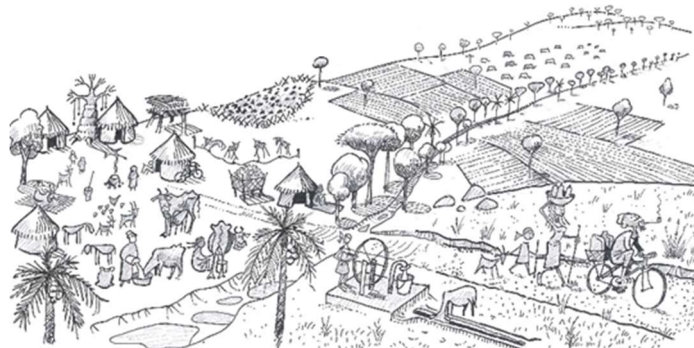
Three types of dairy farm systems with differentiated levels, trends and needs for AEI have been highlighted.

In the Agropastoral dairy farm system, sale of livestock is predominant over milk. A small nucleus of zebu females, isolated from the herd, is milked. Reproduction is natural. Traditionally self-consumed and sold in informal markets on behalf of women, an increasing part of milk is sold to dairies. Grazing is the main feed resource. Fodder storage and manure recycling are low. Milk yield is low. This type is widely distributed in the savannah area (SN and BF). Dairy processors have supply difficulties with this type due to high farm dispersion, low milk quantity per farm, seasonality of production, high milk prices at farm gate.

In the *Small dairy farm* system, milk is a major economic activity. The milked females, mostly zebu and sometimes crossbreeds dairy cows, are raised in stable. Reproduction is mainly natural. Females are fed with forages and concentrates, and grazing is not systematic. Storing fodder and recycling manure are common practices. Milk yield is higher. Self-consumption persists, but the part of sold milk is greater. This type is dominant in tropical altitude areas (MD, KN) and it is in development in savannah areas (SN and BF). This type better meets the needs of dairies.

In the *Industrial dairy farm* system, milk is the main economic activity. Dairy cows are numerous and mostly exotic breeds. Reproduction is artificial. The milked females are kept in stable without access to pasture. They are fed with concentrate, silage and cultivated forage. Operations are mechanized (milking, etc.). This system is highly dependent on purchase inputs (feeds, energy, etc.), and equipment (tanks, tractors, etc.). Calves are separated from cows at birth. The milk yield is high and all the milk is marketed. Still very rare in Africa, this type is often funded by local investors. It is mainly found near major cities.

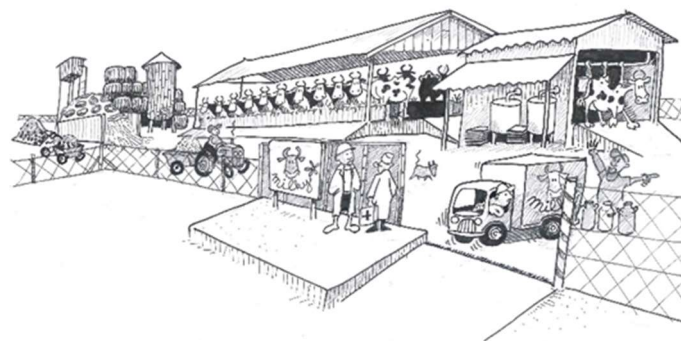
These three farming types include actually many variants and each type has more or less important intensification and agro-ecological features to develop. According to our first finding, mini farm system seems to present a good trade-off between AEI, the needs of dairy processors and the financing capacity of a large number of producers.



Agro-pastoral dairy farm system



Small dairy farm system



Industrial dairy farm system